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1-21-03

**NL INDUSTRIES/TARACORP SUPERFUND SITE GROUP**

**Leed Environmental, Inc.**

**124 Deborah Drive**

**Reading, PA 19610**

**Telephone: 610/670-7310**

**Telecopy: 610/670-7311**

January 21, 2003

**Telecopy and First Class Mail**

Mr. Brad Bradley  
U.S. Environmental Protection Agency  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

**RE: NL Industries/Taracorp Superfund Site; Granite City, Illinois  
Five-Year Review  
Scope of Work for Groundwater Monitoring**

Dear Mr. Bradley:

As we have discussed, the NL Industries/Taracorp Superfund Site Group ("Group") understands that the U.S. Environmental Protection Agency ("EPA") is requesting that groundwater monitoring and soil sampling be performed by the Group at the NL/Taracorp Superfund Site in Granite City, Illinois in conjunction with EPA's five-year review.

In response to EPA's request, the Group has authorized ENTACT, Inc. ("ENTACT") to prepare a work plan for inspecting the main industrial site, including the Taracorp pile cap, and conducting soil sampling activities. ENTACT's work plan will be submitted to EPA for review as soon as the work plan has been prepared.

The Group also plans to authorize ARCADIS Geraghty & Miller ("ARCADIS") to conduct groundwater monitoring activities at the site in conjunction with EPA's five-year review. The proposed scope of work for groundwater monitoring activities for the five-year review is consistent with the scope of the third annual groundwater monitoring event outlined in the "Groundwater Monitoring Plan, NL Industries/Taracorp Superfund Site, Granite City, Illinois" that was submitted to EPA in December 2000 and revised in September 2001 in response to EPA's August 16, 2001 approval letter. Upon receipt of EPA's approval of the Scope of Work - 2003 Annual Groundwater Monitoring (attached), the Group will notify property owners and authorize ARCADIS to conduct groundwater sampling activities.

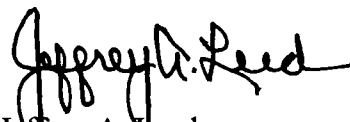


Mr. Brad Bradley  
January 21, 2003  
Page 2

Please contact this office if additional information or clarification is needed.

Very truly yours,

**LEED ENVIRONMENTAL, INC.**

A handwritten signature in black ink, appearing to read "Jeffrey A. Leed". The signature is fluid and cursive, with the first name "Jeffrey" being more prominent.

Jeffrey A. Leed  
Project Coordinator

attachment

cc: Ms. Sandra Bron - Illinois EPA (w/attachment, by first class mail)  
Mr. Jack Kratzmeyer - ARCADIS (w/attachment, by first class mail)  
Technical Committee, NL Industries/Taracorp Superfund Site Group  
(w/attachment, by first class mail)

**Scope of Work  
2003 Annual Groundwater Monitoring  
NL Industries/Taracorp Superfund Site; Granite City, Illinois**

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**Introduction**

In September 2000, the U.S. Environmental Protection Agency ("EPA") issued an Explanation of Significant Differences ("ESD") for the NL Industries/Taracorp Superfund Site (the "site") in Granite City, Illinois. In the ESD, EPA selected continued groundwater monitoring as the final remedy for groundwater at the site.

Following EPA's issuance of the ESD, the NL Industries/Taracorp Superfund Site Group ("Group") authorized ARCADIS Geraghty & Miller ("ARCADIS") to prepare a monitoring plan to implement EPA's groundwater remedy. ARCADIS submitted a document entitled "Groundwater Monitoring Plan, NL Industries/Taracorp Superfund Site, Granite City, Illinois" ("Groundwater Monitoring Plan") to EPA on behalf of the Group in December 2000. In response to EPA's August 16, 2001 approval letter, modifications to the approved Groundwater Monitoring Plan were submitted to EPA on September 28, 2001. Subsequently, the Group authorized ARCADIS to conduct annual groundwater monitoring events at the site which were performed in December 2001 and July 2002. Data from the annual groundwater monitoring events have previously been submitted to EPA.

This scope of work describes the annual groundwater monitoring activities that will be performed by the Group at the site in 2003. Upon receipt of EPA's approval, the Group will authorize ARCADIS to perform an annual groundwater monitoring event at the site in accordance with the procedures outlined in the Groundwater Monitoring Plan. The work will support EPA's five-year review to be performed in 2003.

**Groundwater Monitoring Network**

The existing monitoring well network at the site consists of 35 monitoring wells. A list of the monitoring wells that comprise the monitoring well network at the main industrial site and remote fill areas in Venice Township and Eagle Park Acres is presented in Table 1. Twenty-nine monitoring wells are located at the main industrial site (Figures 1 - 4), three wells are located in Eagle Park Acres (Figure 5), and three wells are located in Venice Township (Figure 6).

### **1999 - 2000 Remedial Design Sampling Activities**

Based upon the results of groundwater sampling performed by ARCADIS for the Group during the 1999 - 2000 pre-design field investigation, EPA determined that lead, cadmium, and zinc were the most frequently detected analytes with the highest quantified concentrations in groundwater samples collected from monitoring wells at the main industrial site. The results of the pre-design groundwater sampling activities are presented in the ARCADIS report entitled "Pre-Design Investigation for Groundwater, NL Industries/Taracorp Superfund Site, Granite City, Illinois", which was submitted to EPA in September 2000.

### **2001 and 2002 Annual Groundwater Monitoring Events**

EPA selected long-term groundwater monitoring requirements at the site based upon the results of the pre-design groundwater investigation. Groundwater samples collected by ARCADIS during the 2001 and 2002 annual monitoring events were analyzed for lead, cadmium, and zinc. The groundwater samples collected from the monitoring wells in the remote fill areas in Venice Township and Eagle Park Acres were analyzed for lead.

### **2003 Annual Monitoring Event**

During the 2003 annual monitoring event at the site, groundwater samples will be collected from the existing monitoring well network to evaluate any changes in groundwater quality at the site. The scope of work for the 2003 annual groundwater monitoring event is summarized as follows:

1. One round of groundwater samples will be collected from each of the 35 wells in the existing monitoring well network at the site. Groundwater sampling and analysis activities will be performed in accordance with the Groundwater Monitoring Plan and the Quality Assurance Project Plan included in the Pre-Design Investigation Work Plan for Groundwater. Groundwater samples (unfiltered samples) will be collected using low-flow sampling methods.
2. During groundwater sampling activities, groundwater elevations and field data measurements of oxidation-reduction potential (Redox), specific conductance, pH, turbidity, and temperature will be collected from each of the 35 existing monitoring wells.
3. The groundwater samples collected from the 29 wells at the main industrial site will be analyzed by STL Savannah Laboratories, Savannah, Georgia, for total lead, total cadmium, and total zinc (i.e., unfiltered samples) using EPA-approved method (Test Methods for Evaluating Solid Waste, SW-846, Third Edition) SW-846 Method 6010.

4. The groundwater samples collected from the six wells located in the remote fill areas will be analyzed by STL Savannah Laboratories for total lead (i.e., unfiltered samples) using EPA-approved method (Test Methods for Evaluating Solid Waste, SW-846, Third Edition) SW-846 Method 6010.
5. ARCADIS will validate the laboratory data for all groundwater samples collected during the 2003 annual monitoring activities. The data will be validated using EPA-approved methodologies in accordance with data validation guidelines for inorganic parameters. The laboratory QA/QC reporting will correspond to ARCADIS Level II deliverables. The validated data will be entered into the electronic database (MS Access™) that has been created by ARCADIS for data collected during the annual groundwater monitoring events.
6. Upon receipt of laboratory results, ARCADIS will evaluate the data generated during the 2003 annual monitoring event and prepare an Annual Monitoring Report to document the results of the sampling activities. The report will be submitted to EPA and will include the following information:
  - Description of field activities:
    - Status and integrity of the monitoring well network; and
    - Discussion of any changes in sampling protocol.
  - Summary of groundwater quality data:
    - Validated analytical data summary tables;
    - Discussion of data validation results; and
    - Evaluation of groundwater quality.
  - Summary of water level data:
    - Water level data summary tables; and
    - Potentiometric maps.

Groundwater level measurements will be tabulated and used to generate groundwater potentiometric contour maps of the site. Data tables will be included in the report to summarize the validated analytical results, including the constituents analyzed, concentrations detected, qualifiers added during validation, detection limits, sample location, and date of sampling. The Annual Monitoring Report will also include a brief narrative description of the conclusions of the groundwater sampling event and any recommendations that may be appropriate for future activities.

Groundwater monitoring procedures to be used during the 2003 annual monitoring event will be conducted in accordance with the procedures contained in the Health and Safety Plan for the NL Industries/Taracorp Superfund Site which was previously reviewed by EPA as part of the Pre-Design Investigation Work Plan for Groundwater.

## **Schedule**

In accordance with the ESD, previous annual groundwater monitoring events have been performed at different times of the year to account for potential seasonal variations in groundwater elevations at the site. The previous annual groundwater monitoring events were performed in December 2001 (winter) and July 2002 (summer). The Group anticipates that the 2003 annual monitoring event will be performed in spring 2003 upon receipt of EPA's authorization to proceed.

The Group anticipates that ARCADIS' Annual Monitoring Report will be submitted to EPA approximately two months after the completion of sampling activities. Status updates of groundwater monitoring activities will be included as part of the Group's monthly progress reports.

## **References**

ARCADIS Geraghty & Miller, Inc. 1999. Pre-Design Investigation Work Plan for Groundwater, NL Industries/Taracorp Superfund Site, Granite City, Illinois, August 1999.

ARCADIS Geraghty & Miller, Inc. 2000. Pre-Design Investigation Report, NL Industries/Taracorp Superfund Site, Granite City, Illinois, September 2000.

U.S. Environmental Protection Agency. 2000. Explanation of Significant Differences for the NL Industries Site, Granite City, Illinois, September 2000.

ARCADIS Geraghty & Miller, Inc. 2000 and 2001. Groundwater Monitoring Plan, NL Industries/Taracorp Superfund Site, Granite City, Illinois, December 2000. Modified September 2001.

# ARCADIS GERAGHTY & MILLER

Table 1. Groundwater Monitoring Well Network, Groundwater Monitoring Plan  
NL Industries/Taracorp Site, Granite City, Illinois.

Well Identification	Well Diameter (inches)	Well Depth (ft bls)	Screen Material/ Construction	Screen Length (ft)	Screen Interval (ft bls)	Top of Casing Elevation	Ground Elevation (ft msl)
MW-101	2.0	25.0	Type A	10.0	15.0-25.0	NA	NA
MW-102	2.0	25.0	Type A	10.0	15.0-25.0	NA	NA
GMMW-103R	2.0	23.0	Type B	10.0	13.0-23.0	NA	NA
MW-104	2.0	27.0	Type A	10.0	17.0-27.0	NA	NA
MW-105S	2.0	26.0	Type A	5.0	21.0-26.0	NA	NA
MW-105D	2.0	35.3	Type A	5.0	30.3-35.3	NA	NA
MW-106S	2.0	20.79	Type A	5.0	15.79-20.79	NA	NA
MW-106D	2.0	34.91	Type A	5.0	29.91-34.91	NA	NA
MW-107S	2.0	22.46	Type A	5.0	17.46-22.46	NA	NA
MW-107D	2.0	35.44	Type A	5.0	30.44-35.44	NA	NA
GMMW-108S	2.0	29.0	Type B	10.0	19.0-29.0	NA	NA
MW-108D	2.0	32.26	Type A	5.0	27.26-32.26	NA	NA
GMMW-108X	2.0	50.0	Type B	10.0	40.0-50.0	NA	NA
GMMW-109S	2.0	24.0	Type B	10.0	14.0-24.0	NA	NA
GMMW-109D	2.0	36.5	Type B	10.0	26.5-36.5	NA	NA
GMMW-109X	2.0	50.0	Type B	10.0	40.0-50.0	NA	NA
GMMW-112S	2.0	21.0	Type B	10.0	11.0-21.0	NA	NA
GMMW-112D	2.0	37.5	Type B	10.0	27.5-37.5	NA	NA
GMMW-113S	2.0	22.0	Type B	10.0	12.0-22.0	NA	NA
GMMW-113D	2.0	37.5	Type B	10.0	27.5-37.5	NA	NA
GMMW-115S	2.0	28.0	Type B	10.0	18.0-28.0	NA	NA
GMMW-115D	2.0	41.0	Type B	10.0	31.0-41.0	NA	NA
GMMW-116S	2.0	31.0	Type B	10.0	21.0-31.0	NA	NA
GMMW-116D	2.0	44.0	Type B	10.0	34.0-44.0	NA	NA
GMMW-117	2.0	24.0	Type B	10.0	14.0-24.0	NA	NA
GMMW-118	2.0	34.0	Type B	10.0	24.0-34.0	NA	NA
GMMW-119	2.0	22.0	Type B	10.0	12.0-22.0	NA	NA
GMMW-120	2.0	21.0	Type B	10.0	11.0-21.0	NA	NA
GMMW-121	2.0	20.0	Type B	10.0	10.0-20.0	NA	NA
GMMW-122	2.0	21.0	Type B	10.0	11.0-21.0	NA	NA
GMMW-123	2.0	22.0	Type B	10.0	12.0-22.0	NA	NA
GMMW-124S	2.0	27.0	Type B	10.0	17.0-27.0	NA	NA
GMMW-124D	2.0	40.0	Type B	10.0	30.0-40.0	NA	NA
GMMW-125	2.0	29.0	Type B	10.0	19.0-29.0	NA	NA
GMMW-126	2.0	26.0	Type B	10.0	16.0-26.0	NA	NA

## Notes:

All screen material is Polyvinyl chloride (PVC).

Type A screen material is Schedule 40 PVC with 0.010 inch slot size.

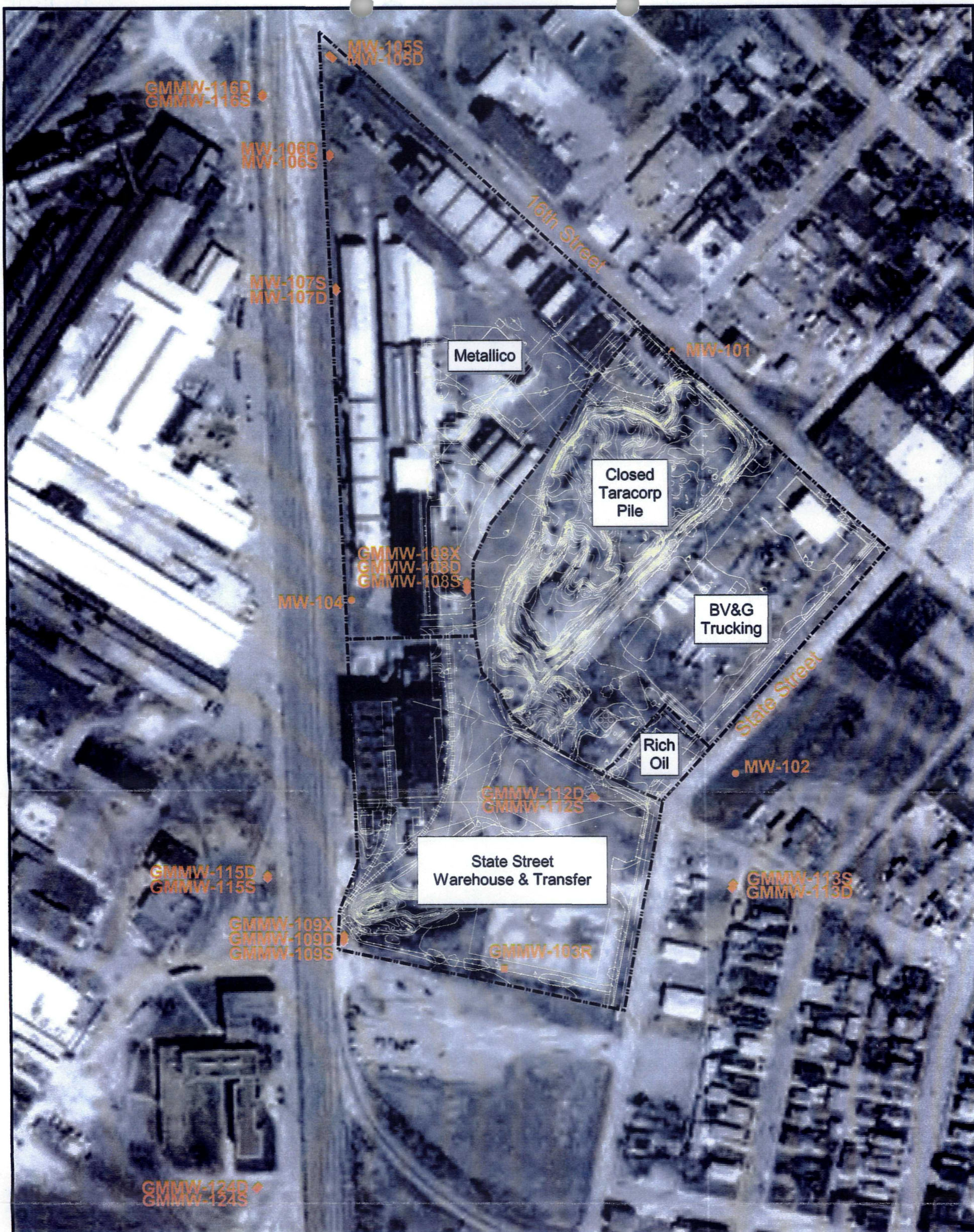
Type B screen material is Vee-Pak (pre-sand packed) Schedule 40 PVC with 0.008 inch slot size.

ft feet

bls below land surface

msl mean sea level

NA Not Available



200 0 200 400 Feet

#### Legend

- MW-101 Existing Monitoring Well/Identification
- GMMW-109S,D Monitoring Well Cluster/Identification(Shallow and Deep Depths)
- GMMW-109X Deeper Monitoring Well/Identification
- GMMW-103R Replacement Monitoring Well/Identification
- S Shallow (12-34 feet below land surface)
- D Deep (27-44 feet below land surface)
- X Deeper (40-50 feet below land surface)
- Approximate Property Line
- Corps of Engineers map

Aerial Photo Source: Photographed 1999 by the National Aerial Photography Program and digitized by the USGS DOQ Program on 2001.

NOTE: Location of GMMW-108D is approximated.  
Monitoring well locations surveyed by Juneau Associates, Inc., P.C., on July 25, 2002

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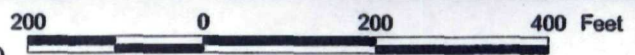


35 East Wacker Drive, Suite 1000  
Chicago, IL 60601  
Tel (312)263-6703 Fax (312)263-7897

Drawing Date: 09/04/2002	File Name: nl.apr	File Location: G:\GIS\Mapping\NL\CI001003.0007\	Drawn By: M. Eiseman	Checked By: K. Lala	Project Manager: J. Kratzmeyer
NL Industries/Taracorp Superfund Site Monitoring Well Locations Main Industrial Site Granite City, Illinois				Dept. Manager:	View: Well Locations, Main Industrial
				Project Number: CI001003.0007	Figure: 1



- Legend**
- MW-101 Existing Monitoring Well/Identification
  - GMMW-109S,D Monitoring Well Cluster/Identification(Shallow and Deep Depths)
  - GMMW-109X Deeper Monitoring Well/Identification
  - GMMW-103R Replacement Monitoring Well/Identification
  - S Shallow (12-34 feet below land surface)
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  - X Deeper (40-50 feet below land surface)
  - Approximate Property Line
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Aerial Photo Source: Photographed 1999 by the National Aerial Photography Program and digitized by the USGS DOQ Program in 2001.

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Tel (312)263-6703 Fax (312)263-7897

Drawing Date: 09/05/2002	File Name: nl.apr	File Location: G:\GIS\Mapping\NL\CI001003.0007\	Drawn By: M. Elsomman	Checked By: K. Lala	Project Manager: J. Kratzmeyer
<b>NL Industries/Taracorp Superfund Site</b> <b>Monitoring Well Location GMMW-125</b> <b>Main Industrial Site</b> <b>Granite City, Illinois</b>				Dept. Manager:	View: Well Location GMMW-125
				Project Number: CI001003.0007	Figure: <b>2</b>



#### Legend

- MW-101 ● Existing Monitoring Well/Identification
- GMMW-109S,D ◆ Monitoring Well Cluster/Identification(Shallow and Deep Depths)
- GMMW-109X ◆ Deeper Monitoring Well/Identification
- GMMW-103R ◆ Replacement Monitoring Well/Identification
- S Shallow (12-34 feet below land surface)
- D Deep (27-44 feet below land surface)
- X Deeper (40-50 feet below land surface)
- Approximate Property Line
- Corps of Engineers map

200 0 200 400 Feet

Aerial Photo Source: Photographed 1999 by the National Aerial Photography Program and digitized by the USGS DOQ Program in 2001.



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Tel (312)263-6703 Fax (312)263-7897

Drawing Date:  
09/05/2002

File Name:  
nl.apr

File Location:  
G:\GIS\Mapping\NLIC1001003.0007\

Drawn By:  
M. Etseman

Checked By:  
K. Lala

Project Manager:  
J. Kratzmeyer

### NL Industries/Taracorp Superfund Site Monitoring Well Location GMMW-126 Main Industrial Site Granite City, Illinois

Dept. Manager:

View:  
Well Location  
GMMW-126

Project Number:  
C1001003.0007

Figure:

**3**



#### Legend

- MW-101 Existing Monitoring Well/Identification
- GMMW-109S,D Monitoring Well Cluster/Identification(Shallow and Deep Depths)
- GMMW-109X Deeper Monitoring Well/Identification
- GMMW-103R Replacement Monitoring Well/Identification
- S Shallow (12-34 feet below land surface)
- D Deep (27-44 feet below land surface)
- X Deeper (40-50 feet below land surface)
- Approximate Property Line
- Corps of Engineers map

200 0 200 400 Feet

Aerial Photo Source: Photographed 1999 by the National Aerial Photography Program and digitized by the USGS DOQ Program in 2001.



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Chicago, IL 60601  
Tel (312)263-6703 Fax (312)263-7897

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File Name:  
nl.apr

File Location:  
G:\GIS\Mapping\NL\CI001003.0007\

Drawn By:  
M. Elseman

Checked By:  
K. Lala

Project Manager:  
J. Kratzmeyer

NL Industries/Taracorp Superfund Site

Monitoring Well Location GMMW-123

National Steel Corp

Granite City, Illinois

Dept. Manager:

View:  
Well Location  
Nat. Steel Corp.

Project Number:  
CI001003.0007

Figure:

4



- Legend**
- MW-101 ● Existing Monitoring Well/Identification
  - GMMW-109S,D ◆ Monitoring Well Cluster/Identification(Shallow and Deep Depths)
  - GMMW-109X ◆ Deeper Monitoring Well/Identification
  - GMMW-103R ◆ Replacement Monitoring Well/Identification
  - S Shallow (12-34 feet below land surface)
  - D Deep (27-44 feet below land surface)
  - X Deeper (40-50 feet below land surface)
  - Approximate Property Line
  - Corps of Engineers map

400 0 400 800 Feet

Aerial Photo Source: Photographed 1999 by the National Aerial Photography Program and digitized by the USGS DOQ Program in 2001.



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Drawing Date:  
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File Name:  
nl.apr

File Location:  
G:\GIS\Mapping\NL\CI001003.0007\

Drawn By:  
M. Elseman

Checked By:  
K. Lala

Project Manager:  
J. Kratzmeyer

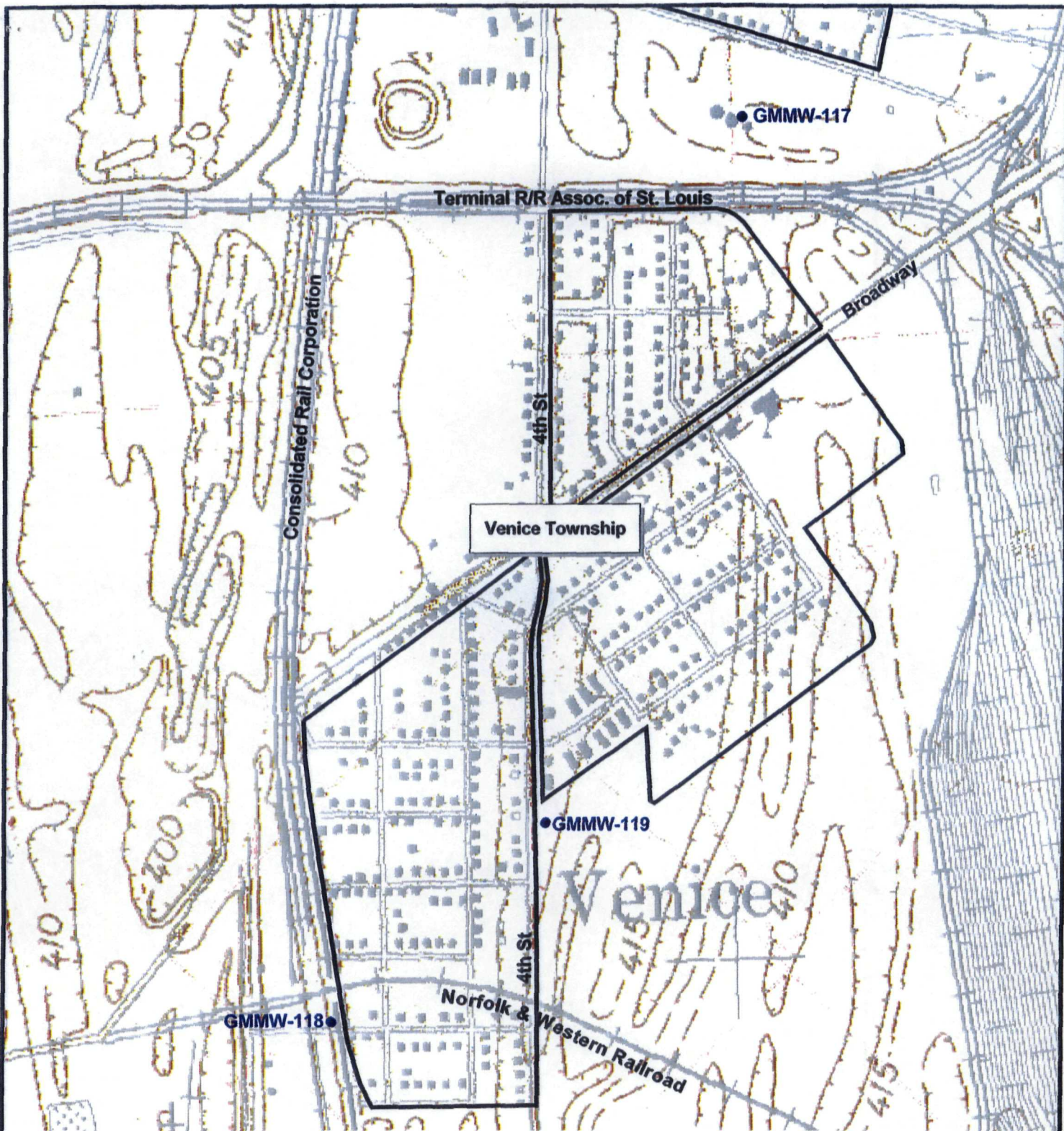
Dept. Manager:

View:

Project Number:  
CI001003.0007

Figure:  
5

NL Industries/Taracorp Superfund Site  
Monitoring Well Locations, Remote Fill Areas  
Eagle Park Acres  
Granite City, Illinois



- Legend**
- MW-101 ● Existing Monitoring Well/Identification
  - GMMW-109S,D ◆ Monitoring Well Cluster/Identification (Shallow and Deep Depths)
  - GMMW-109X ◆ Deeper Monitoring Well/Identification
  - GMMW-103R ■ Replacement Monitoring Well/Identification
  - S Shallow (12-34 feet below land surface)
  - D Deep (27-44 feet below land surface)
  - X Deeper (40-50 feet below land surface)
  - -- Approximate Property Line
  - Corps of Engineers map

Topographical Map Source: United States Geological Survey  
7.5 minute Digital Raster Graphics. Quadrangles used:  
Granite City, IL-MO; 1993.



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Chicago, IL 60601  
Tel (312)263-6703 Fax (312)263-7897

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File Name:  
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File Location:  
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Drawn By:  
M. Elsemann

Checked By:  
K. Lala

Project Manager:  
J. Kratzmeyer

**NL Industries/Taracorp Superfund Site**  
**Monitoring Well Locations, Remote Fill Areas**  
**Venice Township**  
Granite City, Illinois

Dept. Manager:  
  
Project Number:  
CI001003.0007

View:  
Well Location  
Venice Township  
  
Figure:  
**6**